

## REMARKS

Claims 29-53, 59, 62-70 are pending.

Claims 63-70 are new. Independent claims 63 and 67 are directed, in relevant part, to aqueous herbicidal compositions that are solutions containing no effective amount of an organic solvent thereby excluding emulsions from the scope of the claims. Claim 67 further requires early visual symptoms of plant treatment provided within about 5 days after treatment and at least 70% plant control provided about 20 days after treatment.

Support for claims 63 and 67 is generally provided by claim 29. Support for the limitation requiring no effective amount of an organic solvent is provided by paragraph [0142] and throughout the Examples of Publication Number US 2005/0026781 A1 ("US '781"). Support for the limitation requiring a solution is provided by US '781 at paragraphs [0052] and [0069] and throughout the Examples. Support for the limitation of early visual symptoms of plant treatment within about 5 days after treatment is provided by US '781 at paragraph [0070] and support for the limitation of at least 70% plant control is provided about 20 days after treatment is provided at paragraphs [0062] and [0063].

Support for claims 64-66 and 68-70 is provided by claims 30-32.

Applicants acknowledge the withdrawal of the rejection of claims 29, 33, 37-39 and 42 under 35 U.S.C. §112, second paragraph.

Applicants acknowledge the provisional nonstatutory obviousness-type double patenting rejection of claims 29-53 and 59 over: claims 1-4, 7-10, 12-24, 26-38, 48, 63, 69-73 and 75-84 of copending Application No. 11/368,872; claims 1, 9-11 and 15-17 of copending Application No. 11/227,577; and claims 1, 11, 13, 15 and 16 of copending Application No. 11/438,573. In view of the provisional nature of the rejection, the merits of the rejections will be addressed at such time when the present application is indicated to contain allowable subject matter.

### **I. Rejection Under 35 USC §103**

Claims 29-53, 59 and 62 are rejected under 35 USC §103(a) as being obvious over Hacker et al. (US 6,677,276 B1), Brigance (US 2002/0155953 A1) and Jimoh (US 2003/0004063 A1).

It is respectfully submitted that claims 29-53, 59 and 62 are non-obvious over the combination of Hacker, Brigance and Jimoh.

### **1. The present invention**

Glyphosate is very effective in killing or controlling the growth of unwanted plants. However, glyphosate uptake (i.e., absorption) by the plant and translocation through the plant is relatively slow. Thus, visual symptoms that a plant has been treated with glyphosate may not appear until one week or more after application to the plant. See the specification at page 1, lines 14-25.

The problem solution of the present invention is directed to combining a pyridine analog herbicide (or a salt or ester thereof) with glyphosate (or a salt or ester thereof), glyphosate being in excess, in the presence of a surfactant in order to achieve one of the objects of the present invention of obtaining both early symptoms of plant treatment that are associated with the pyridine analog herbicide and prolonged control of the plant associated with glyphosate (see the specification at page 1, lines 6-13, and page 12, lines 2-8). Early symptoms of plant treatment are visible in 4 days or less after treatment (see the specification at page 19, lines 5-9). Problematically, the prior art teaches that pyridine analog herbicides can be antagonistic and can reduce the herbicidal activity of glyphosate or a herbicidal derivative thereof (see the specification at page 19, lines 10-12). In accordance with the present invention, it has been discovered that combining glyphosate in a weight percent acid equivalent ("a.e.") excess over the pyridine analog herbicide overcomes the antagonism problem and provides enhanced early symptoms of herbicidal efficacy for the combination of herbicides as compared to what would be expected from the additive effect of the herbicides individually applied. The present invention therefore allows for early plant kill, increased herbicidal efficacy and lower herbicide application rates for the claimed combination as compared to the herbicides applied individually. Lower herbicide application rates result in cost savings and less unwanted environmental exposure.

As made of record in the Office action response filed October 23, 2008, Applicants have discovered that the claimed co-herbicide combination provides enhanced early symptoms of herbicidal efficacy. See, for instance, Table 4.4.1 at pages 69-70 of the specification, where the claimed co-herbicide combination was shown to provide enhanced early symptoms of herbicidal efficacy on Fescue/Blue and Golden Rod at 5 DAT as compared to what would be expected from

the additive effect of the herbicides individually applied. Under the Colby method for estimating synergy<sup>1</sup>, an expected herbicidal efficacy for the combination of glyphosate (Roundup Brush) and triclopyr (Brush-B-Gone) when applied to Fesc/Blue is 75 and when applied to Golden Rod is 70. For Fesc/Blue, the actual efficacy at 5 DAT for the compositions containing glyphosate and triclopyr in the ratio range of 6:1 (i.e., 18+3 as reported in Table 4.1.1) to 36:1 (i.e., 18+0.5) exceeded the expected value of 75 thereby indicating enhanced efficacy for the claimed compositions. For Golden Rod, the actual efficacy at 5 DAT for the compositions containing glyphosate and triclopyr in the ratio range of 6:1 (i.e., 18+3) to 9:1 (i.e., 18+2) exceeded the expected value of 70 thereby indicating enhanced efficacy at 5 DAT for the claimed compositions.

## 2. The Cited Prior Art

The cited prior art has been previously discussed in prosecution of the present application. In Summary:

### A. Jimoh

- (1) Jimoh is generally directed to liquid concentrate herbicidal emulsion compositions comprising a water soluble herbicide in water and an oil soluble herbicide. Jimoh is directed to the problem of overcoming water-mediated chemical degradation of the oil-soluble herbicides. Jimoh solves the problem by forming an emulsion in which the oil soluble herbicide is isolated from the aqueous phase, such as by forming a discontinuous oil phase in which the oil soluble herbicide is isolated.

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<sup>1</sup> See Colby, S.R., "Calculating synergistic and antagonistic response of herbicide combinations," Weeds, 15, 20-22, 1967 (attached). The Colby method is widely accepted by those skilled in the art as a method for determining whether herbicide combinations show antagonism or synergy. Under the Colby method, the expected efficacy for a herbicide combination is calculated from the efficacy of those herbicides applied individually according to the equation:

$$E = X + Y - XY/100$$

where E is the expected herbicidal efficacy, X is the percent inhibition of growth by herbicide A (i.e., glyphosate) and Y is the percent inhibition of growth by herbicide B (i.e., triclopyr). For Fesc/Blue from table 4.4.1 of the instant application, an expected efficacy (E) of 75 is calculated from the individual efficacies as follows:  $(50 + 50) - (50)(50)/100 = 75$ . For Goldenrod from table 4.4.1, (E) of 70 is calculated from the individual efficacies as follows:  $(50 + 40) - (50)(40)/100 = 70$ .

- (2) Jimoh expressly teaches away from combining glyphosate and an oil soluble herbicide without the requirement for an emulsion or a solvent as instantly claimed, because he teaches that the oil soluble herbicide degrades in the presence of water.<sup>2</sup>
- (3) Jimoh describes a weight ratio of water-soluble herbicide to oil-soluble herbicide of from 190:1 to 1:1. That range overlaps the instantly claimed ranges of independent claims 29, 33, 37, 38, 39, 46 and new claims 63 and 67 that each have an open ended upper limit and require an excess of glyphosate over pyridine analog.
- (4) Jimoh is directed to the problem of minimizing degradation of oil-soluble herbicides in aqueous formulations, does not recognize or in any way suggest that the ratio of glyphosate to coherbicide is a result effective variable for long-term plant control, and does not teach or suggest that glyphosate-pyridine analog herbicide antagonism can be overcome by formulating glyphosate in a weight percent excess. Instead, Jimoh recognizes emulsion formation as the result effective variable for preventing water-insoluble herbicide degradation.
- (5) Jimoh does not suggest that herbicidal efficacy for some of the claimed combinations can be greater than what would be expected based on the herbicidal efficacy of the herbicides applied individually.
- (6) Jimoh provides a broad disclosure of 52 possible water-soluble herbicides including glyphosate and the pyridine analog herbicides picloram, clopyralid and triclopyr. Twenty-one separate water-soluble herbicide genera are disclosed.<sup>3</sup> From among the 52 disclosed water soluble herbicides, the combination of glyphosate and picloram, glyphosate and clopyralid and glyphosate and triclopyr are but three out of a possible 1326 combinations of two water-soluble herbicides.

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<sup>2</sup> See Jimoh paragraphs [0006], [0008], [0009], [0011], [0012], [0016], [0049], [0050], [0052] and Example 11.

<sup>3</sup> (1) nitrophenylether (acifluorfen, fluoroglycofen, fomesafen); (2) unclassified (acrolein, bentazon, endothall, fenac); (3) triazole (amitrole); (4) carbamate (asulam); (5) benzothiazole (benzolin); (6) pyridine analog (clopyralid, triclopyr, picloram); (7) organophosphorus (bialaphos, fosamine, glufosinate, glyphosate); (8) uracil (bromacil); (9) nitrile (bromoxynil, ioxynil); (10) benzoic acid (chloramben, dicamba, 2,3,6-TBA, ); (11) halogenated aliphatic (chloroacetic acid, dalapon, flupropanate, TCA); (12) phenoxyacetic (2,4-D, 2,4-DB, MCPA, ); (13) phenoxybutyric (MCPB); (14) phenoxy propionic (dichlorprop, mecoprop); (15) pyrazole (difenzoquat); (16) quaternary ammonium (diquat, paraquat); (17) aryloxyphenoxypropionic (fenoxaprop); (18) arylalanine (flamprop); (19) dicarboximide (flumiclorac); (20) imidazolinone (imazamethabenz, imazamox, imazapic, imazapyr, imazaquin, imazethapyr); (21) amide (naptalam); (22) quinolinecarboxylic acid (quinclorac)

- (6.1) Picloram, clopyralid and triclopyr are not among the water soluble herbicides described in the last two sentences of paragraph [0028] as being particularly preferred (i.e., bialaphos, glufosinate, glyphosate and the imidazolinones imazameth, imazamethabenz, imazamox, imazapic, imazapyr, imazaquin and imazethapyr). Nor does Jimoh provide any example for the combination of glyphosate and a pyridine analog herbicide.
- (6.2) Thus, Jimoh does not suggest a preference for the selection of the instantly claimed herbicide combinations from among the 1326 possible combinations encompassed by the broad disclosure, to the exclusion of the 1323 combinations. Nor does Jimoh suggest a preference for the selection of the instantly claimed pyridine analog herbicide genus from among the other 21 genera, to the exclusion of the remaining 20 genera. Jimoh therefore provides no reason for one skilled in the art to select the narrow specific combination of glyphosate and picloram, clopyralid or triclopyr from among the innumerable possible combinations of water soluble herbicides while excluding the remainder of the herbicides.
- (7) Jimoh provides a broad disclosure of 192 oil soluble herbicides including dithiopyr and thiazopyr. That disclosure includes a large number of genera of water-insoluble herbicides as compared to the claimed selection of one water insoluble herbicide genus. From among the list of 9 preferred water-soluble herbicides (including glyphosate) disclosed at paragraph [0028] as being particularly preferred, the combination of glyphosate and dithiopyr or glyphosate and thiazopyr are but two out of 1719 possible combinations of a water-soluble and water-insoluble pesticide. Jimoh therefore provides no reason for one skilled in the art to select the narrow specific combination of glyphosate and a pyridine analog from among the innumerable possible combinations of water soluble herbicides and water insoluble herbicides while excluding the remainder of the herbicides.

**B. Hacker**

- (1) Hacker describes a large number of herbicide combinations for control of harmful plants in herbicide-tolerant oil-seed rape crops. Hacker describes combinations of "Group A" herbicides and "Group B" herbicides wherein columns 5-8 lists 15

Group A herbicides (including glyphosate) and 20 Group B herbicides (including clopyralid) representing 17 separate herbicide genera. From that listing, a total of 150 two component herbicide combinations are possible. Column 9, line 46 to column 10, line 3 lists 57 preferred herbicide combinations, while column 10:46-64 list another preferred 40 preferred herbicide combinations. Hacker provides no glyphosate working examples and therefore does not attach any importance to glyphosate compositions that would have provided a reason for one skilled in the art to select the claimed composition from among the 40 preferred combinations while rejecting the remaining 39 combinations disclosed therein;

- (2) The very broad Hacker disclosure fails to recognize that the instantly claimed pyridine analog herbicides can be antagonistic to the herbicidal activity of glyphosate. Hacker broadly discloses synergy for the combination of 4 different classes of Group A herbicides and 6 different classes of Group B herbicides<sup>4</sup> encompassing over 40 herbicide species, but does not present any Experimental evidence to support synergy for glyphosate compositions, much less glyphosate in combination with a pyridine analog herbicide as is instantly claimed. Notably, Hacker acknowledges at column 1:45-49 that biological incompatibility and lack of stability of a coformulation occurs "not infrequently."
- (3) Hacker describes a weight ratio of water-soluble herbicide to oil-soluble herbicide of from 2000:1 to 1:250, most preferably 60:1 to 1:20. Those ranges overlap the instantly claimed ranges of independent claims 29, 33, 37, 38, 39, 46 and new claims 63 and 67 that each require a weight ratio excess of glyphosate a.e. to pyridine analog herbicide.

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<sup>4</sup> Group A herbicides include glufosinate (a glutamine synthetase inhibitor); glyphosate (an enolpyruvyl shikimate-3-phosphate (EPSP) synthase inhibitor); imidazolinones (acetolactate synthase (ALS) or acetoxyhydroxy acid synthase (AHAS) inhibitors); and pyraflufen, carfentrazone, oxadiargyl and sulfentrazone (protoporphyrinogen (PPO) inhibitors). Group B herbicides include metazachlor, trifluralin, naproamide and carbetamide (mitosis inhibitors); clomazone, (carotenoid biosynthesis inhibitors); dimetufuron and pyridate (photosystem II inhibitors); clopyralid (synthetic auxins); ethametsulfuron-methyl (acetolactate synthase (ALS) or acetoxyhydroxy acid synthase (AHAS) inhibitors); quizalofop, fenoxaprop, fluazifop, haloxyfop, propaquizafop, sethoxydim, cycloxydim and clethodim (acetyl CoA carboxylase (ACCase) inhibitors).

- (4) Hacker does not recognize the ratio of glyphosate to coherbicide as a result effective variable for overcoming antagonism, and variation and/or optimization thereof would therefore not be obvious. In particular, Hacker does not recognize co-herbicide ratio as a variable that affects antagonism and does not attach any importance to the instantly claimed weight ratio range of glyphosate to coherbicide in the broadly disclosed range of from 2000:1 to 1:250 or narrower range of 60:1 to 20:1. Hacker therefore teaches that an excess of pyridine analog herbicide to glyphosate from 1:1 to 20:1, or as much as 250:1, (ranges that are excluded from the scope of the pending claims) are suitable for the practice of the invention, and teaches away from the present invention in that regard. Thus, Hacker does not teach, suggest or attach any importance to the selection of glyphosate and pyridine analog herbicide wherein glyphosate is in excess on a weight percent a.e. basis, as is instantly claimed.
- (5) Hacker does not teach or suggest that both short- and long-term plant control can be achieved with the instantly claimed herbicide combinations. Moreover, Hacker fails to provide experimental evidence of short-term control for any herbicidal combination.
- (6) Hacker addresses a different problem (control of harmful plants in crops of herbicide tolerant oil-seed rape) than do the present claims (overcoming glyphosate-pyridine analog herbicide antagonism in order to achieve both early plant control symptomology and long term plant control).

**C. Brigance**

- (1) Disclosed at paragraph [0018] are 17 exemplary herbicides including glyphosate and picloram. From the list of 17 herbicides, 136 two herbicide compositions are possible. Of those herbicides, only glyphosate is described as preferred; no preference for picloram or a mixture of picloram and glyphosate is described or suggested. Thus the instantly claimed combinations are not among Brigance's preferred embodiments. Each example is directed to glyphosate; no mixed herbicide

examples are presented, much less a combination of glyphosate and a pyridine analog herbicide.

- (2) The claim element directed to the weight ratio of glyphosate to pyridine analog is missing from Brigance. Brigance therefore does not teach, suggest or attach any importance to weight ratios between co-herbicides, much less the selection of glyphosate and picloram wherein glyphosate is in excess on a weight percent a.e. basis.
- (3) Brigance addresses a different problem (eye irritancy) than do the present claims (overcoming glyphosate-pyridine analog antagonism to achieve both early plant control symptomology and long term plant control).
- (4) Brigance does not teach or suggest that glyphosate-pyridine analog herbicide antagonism can be overcome by formulating glyphosate in a weight percent excess.
- (5) Brigance does not suggest that herbicidal efficacy for some of the claimed combinations can be greater than what would be expected based on the herbicidal efficacy of the herbicides applied individually.

### **3. Claims 29-53, 59 and 62 meet the requirements under 35 U.S.C. §103(a)**

Applicants respectfully submit that the Office has failed to establish a *prima facie* case of obviousness and the pending claims are non-obvious over Hacker, Brigance and Jimoh.

#### **A. The difference between the prior art and the claims**

Applicants respectfully submit that the difference between the prior art and the claims is the selection and combination of glyphosate (or a salt or ester thereof) and a pyridine analog herbicide (or a salt or ester thereof) wherein the weight ratio of glyphosate acid equivalent to pyridine analog (or a salt or ester thereof) is greater than 1:1, said ratio sufficient to overcome antagonism between glyphosate and the pyridine analog thereby achieving both early plant control symptomology and long term plant control.

The difference between the claims and the prior art is not a surfactant concentration of not greater than 3.9 g/L as suggested by the Office at page 11 of the instant final Office action.

**B. The references do not recognize the weight ratio of glyphosate to pyridine analog as a result effective variable**

None of the cited references recognize the ratio of glyphosate to co-herbicide as being a result effective variable for the purpose of overcoming glyphosate-pyridine analog herbicide antagonism in order to achieve both early plant control symptomology and long term plant control.<sup>5</sup> As explained above, the glyphosate to water-insoluble herbicide ratio of Jimoh of 1:1 to 190:1 and of Hacker of 2000:1 to 1:250 (60:1 to 1:20) overlaps the claimed range. Brigance fails to describe or suggest any ratio. None of the references recognize that the selection and combination of glyphosate and a pyridine analog herbicide in an aqueous medium in the claimed range is effective for the purpose of overcoming antagonism between glyphosate and pyridine analog herbicides for the purpose of achieving both short- and long-term plant control.

The Board of Patent Appeals and Interferences has held that *prima facie* obviousness is lacking where a prior art reference discloses a range that overlaps with a claimed range, but fails to recognize that range as result effective. In particular, "Although an overlap in ranges establishes *prima facie* obviousness, an exception has been recognized where a parameter had not been recognized as being a 'result-effective variable.' *In re Antonie*, 559 F.2d 618, 620, 195 USPQ 6, 8-9 (CCPA 1977)." <sup>6</sup> "While the discovery of an optimum value of a variable in a known process (or in this case, a composition) is normally obvious (See *In re Aller*, 220 F.2d 454, 456 (CCPA 1955); see also *In re Boesch*, 617 F.2d 272, 276 (CCPA 1980)), there is an exception to this general rule, where the parameter optimized was not recognized to be a result effective variable. See *In re Antonie*, 559 F.2d 618, 621 (CCPA 1977)." <sup>7</sup>

It is submitted that Office has failed to establish a *prima facie* case of obviousness because each of Jimoh, Hacker and Brigance, nor by any construction of their combination, fail

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<sup>5</sup> Per MPEP §2144.05, to support a *prima facie* case of obviousness, "[a] particular parameter must first be recognized as a result effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation." citing *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPOA 1977).

<sup>6</sup> Quoting the decision of The Board of Patent Appeals and Interferences in *Ex parte* MICHAEL A. ZASLOFF and GLENN M. ANDERSON, Appeal No. 2007-0055, Application No. 10/053,299, at page 14, decided January 23, 2007.

<sup>7</sup> Quoting the decision of The Board of Patent Appeals and Interferences in *Ex parte* FLOYD D. CRENSHAW, Appeal No. 2008-4083, Application No., 11/116,973, at page 6, decided November 18, 2008.

to recognize the ratio of glyphosate pyridine analog herbicide as a result effective variable for the purpose of avoiding antagonism between glyphosate and the pyridine analog herbicide.

**C. The references and the instant claims are directed to different problems**

The cited references and the present claims present manifestly different solutions to fundamentally different problems.

Jimoh is directed to the problem of water-mediated physical instability and degradation of water-insoluble herbicides when exposed to water in an aqueous formulation. Jimoh solves the problem by forming an emulsion to create a physical barrier to separate the aqueous phase from the water-insoluble herbicide.

Hacker is directed to the problem of control of harmful plants in crops of herbicide tolerant oil-seed rape. Hacker solves the problem by combining herbicides from two different groups in a weight ratio of 2000:1 to 1:250 (narrowly 60:1 to 1:20) and applying the combination to the harmful plants. Hacker is silent regarding early plant control symptomology.

Brigance is directed to the problem of eye-irritation associated with certain surfactants used in pesticide compositions. Brigance solves the problem by formulating the pesticide with a mixture of a polyoxyalkylene aliphatic amine surfactant, a mixture of polyhydric alcohols and a metal-complexing carboxylic acid.

To the contrary, the present invention is concerned with overcoming glyphosate-pyridine analog antagonism in order to achieve both early plant control symptomology and long term plant control. The problem is solved by formulating glyphosate in weight percent excess over the pyridine analog herbicide in the absence of an emulsion.

When a reference has the same purpose, it relates to the same problem, and that fact supports use of that reference in an obviousness rejection, but when a reference has a different purpose, the inventor would have less reason to consider it.<sup>8</sup> Because the instant problem is manifestly different than the problems posed in Jimoh, Hacker and Brigance, one skilled in the art would not have had a reason to transfer the prior art teachings, singularly or in combination, to the present problem of achieving both long- and short-term plant control. Thus Jimoh, Hacker and Brigance, nor by any construction of those references in combination, are not reasonably pertinent to Applicants' particular problem and would not have been considered by one of

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<sup>8</sup> *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007), 82 U.S.P.Q.2d 1385 at 1396.

ordinary skill in the art in determining the obviousness of the subject matter of the pending claims.

**D. The prior art disclosures would not have provided a reason for one skilled in the art to make the presently claimed selection**

There is no clear pattern of preferences in Jimoh, Hacker or Brigance, taken singularly or in combination, that would serve to narrow the generic disclosures of those references to the specifically claimed embodiments.

Because of the generality of Jimoh's disclosure, one skilled in the art would have had to resort to picking and choosing to select the three claimed combinations of glyphosate and picloram, glyphosate and clopyralid or glyphosate and triclopyr from the 1326 possible combinations of water soluble herbicides or the two claimed combinations of glyphosate and dithiopyr or glyphosate and thiazopyr from the 1719 possible combinations of a water-soluble herbicide and a water-insoluble herbicide, and further make such a combination in the absence of an emulsion. Because Jimoh expressly teaches away from combining glyphosate and a pyridine analog in the absence of an emulsion, as per the present claims, one skilled in the art would not have narrowed Jimoh in such a manner.

Although the "comprising" language of the present claims does not exclude the possibility of including an organic solvent as per Jimoh, the objects of the invention are surprisingly achieved in the absence of a solvent (or an emulsion). Jimoh expressly teaches away from the present claims by disclosing that glyphosate and the pyridine analog herbicide thiazopyr will degrade if combined in such a manner. Based on Jimoh, one skilled in the art would have been dissuaded from the instantly claimed selection of the combination of glyphosate and a pyridine analog, wherein glyphosate is in weight percent excess, in the absence of a solvent or an emulsion for the purpose of overcoming glyphosate-pyridine antagonism.

Hacker describes the combination of glyphosate and the pyridine analog herbicide clopyralid from among 150 possible combinations of herbicides disclosed therein. No examples of glyphosate and clopyralid are provided. Hacker discloses a broad weight ratio range of glyphosate to co-herbicides of from 2000:1 to 1:250 and narrowly from 60:1 to 1:20. To the contrary, ratios wherein glyphosate is not in excess, as compared to pyridine analog herbicides, are excluded from the scope of the pending claims.

The very broad Hacker disclosure fails to recognize that the instantly claimed pyridine analog herbicides can be antagonistic to the herbicidal activity of glyphosate. Hacker broadly discloses synergy, but does not present any Experimental evidence to support synergy for glyphosate compositions, much less glyphosate in combination with a pyridine analog herbicide as is instantly claimed. To the contrary, the applicants have discovered that said combination is antagonistic when glyphosate is not present in weight percent excess. In fact, Hacker acknowledges at column 1:45-49 that biological incompatibility and lack of stability of a coformulation occurs "not infrequently." Hacker further fails to suggest that the antagonism can be overcome by formulating glyphosate in a weight percent excess on an acid equivalent basis over the pyridine analog herbicide.

Because of the generality of Hacker's disclosure, one skilled in the art would have had to resort to picking and choosing to select the claimed combinations of glyphosate and clopyralid from the 150 possible combinations of herbicides, recognize (contrary to Hacker's teaching) that glyphosate and clopyralid can be antagonistic when combined, and further restrict the weight ratio of glyphosate to clopyralid to greater than 1:1 while excluding embodiments where clopyralid is in excess (i.e., 1:1 to 1:250). In view of Hacker, one skilled in the art would not have had a reason to make such a restrictive selection to arrive at the present claims.

In view of Hacker's very broad disclosure and lack of evidence regarding specific combinations of glyphosate and pyridine analog herbicides, one skilled in the art would have looked to Jimoh for guidance regarding the properties of such combinations. As explained above, Jimoh teaches away by expressly disclosing that combinations of glyphosate and a pyridine analog herbicide can be unstable (i.e., antagonistic) in aqueous formulations. In view of Hacker and Jimoh, one skilled in the art would not have had a reason to select glyphosate and a pyridine analog herbicide from among the innumerable possible combinations disclosed therein and then formulate them in an aqueous composition in the absence of an emulsion wherein glyphosate is in weight percent excess over the pyridine analog herbicide. Only by impermissible hindsight reconstruction using the present application as a template could it be said that one skilled in the art would have had a reason to make such a selection.

Brigance describes the combination of glyphosate and the pyridine analog herbicide clopyralid from among 136 possible combinations of herbicides disclosed therein. No examples

of glyphosate and clopyralid are provided. Brigance does not recognize that co-formulations of glyphosate and pyridine analog herbicides can be antagonistic when the pyridine analog herbicide is in weight percent excess, nor does Brigance even remotely suggest that glyphosate and pyridine analog herbicides for the purpose of obtaining both early symptoms of plant treatment that are associated with the pyridine analog herbicide and prolonged control of the plant associated with glyphosate. Brigance therefore does not overcome the deficiencies of Jimoh and/or Hacker.

**E. One skilled in the art would not have had a reason to combine the prior art elements to arrive at the claimed combination of glyphosate and a pyridine analog herbicide**

There is nothing in the combination of Hacker, Brigance and Jimoh that would have led one skilled in the art to select the instantly claimed combination from among the innumerable possible herbicide combinations disclosed therein, much less to formulate glyphosate in a weight percent a.e. excess for the claimed purpose with any expectation of success or predictability of result. Viewing the references as a whole, Hacker, Jimoh and Brigance in combination fail to teach or suggest that objects of the present invention including (i) overcoming glyphosate-pyridine analog herbicide antagonism by formulating glyphosate in excess or (ii) achieving both short-term and long-term plant control. There is no clear pattern of preferences in the combination of Jimoh, Hacker and Brigance that would serve to narrow the generic disclosures of those references to the specifically claimed embodiments, and one of ordinary skill in the art would not have had a reason to narrow the generic disclosures of the prior art through picking and choosing in order to select the specific combination of glyphosate and a pyridine analog herbicide from among the innumerable number of possible combinations disclosed therein. Hacker and Brigance provide no reason to consider that such combinations would be promising candidates for both short- and long-term plant control in the absence of antagonism, while Jimoh teaches away from that result. Nor do any of those references teach or suggest that the weight ratio of glyphosate to pyridine analog herbicide is a result effective variable; variation thereof would not be an obvious optimization. One skilled in the art upon reading the cited references in combination would have predicted that the presently claimed combination would be incompatible, and thus would not be a likely candidate to solve the instant problem and achieve the objects of the present invention.

It is respectfully submitted that there is nothing in the prior art that would have led a skilled person to make the claimed combination in the way the claimed new invention does and claims 29-53, 59 and 62 are nonobvious under 35 USC §103(a) over Hacker, Jimoh and Brigrance.

**F. Conclusion**

Applicants respectfully submit that claims 29-53, 59 and 62 are nonobvious under 35 USC §103(a) over Hacker, Jimoh and Brigrance. Withdrawal of the rejection and allowance of the claims is respectfully requested.

**II. Claims 63-70**

New independent claims 63 and 67 correspond to claim 29, but require that the composition is a solution containing no effective amount of an organic solvent, thereby affirmatively excluding emulsions from the scope of the claims.

Because emulsions are excluded from the scope of claims 63 and 67, Jimoh (which requires an emulsion) is removed as a reference for purposes of the instant rejection under 35 U.S.C. §103(a).

It is submitted that claims 63 and 67 (and claims 64-66 and 68-70, respectively, that depend therefrom) are non-obvious over Hacker and Brigrance.

As compared to claims 63 and 67, as explained in detail above, both Hacker and Brigrance (i) fail to recognize that the instantly claimed pyridine analog herbicides can be antagonistic to the herbicidal activity of glyphosate, (ii) fail to recognize the ratio of glyphosate to co-herbicide as being a result effective variable for the purpose of overcoming glyphosate-pyridine analog herbicide antagonism in order to achieve both early plant control symptomology and long term plant control is directed to a different problem, (iii) present manifestly different solutions to fundamentally different problems, and (iv) would not have provided a reason for one skilled in the art to narrow the generic disclosures by picking and choosing from among the innumerable possible combinations disclosed therein in order to arrive at the instantly claimed selection of glyphosate and a pyridine analog herbicide. One skilled in the art would therefore not have had any reason to combine Hacker and Brigrance with any expectation of success, particularly in view of Jimoh which teaches away from such a combination. Claims 63-70 are therefore non-obvious over the Hacker and Brigrance and meet the requirements under 35 U.S.C. §103(a).

Claim 67 further requires early visual symptoms of plant treatment within about 5 days after treatment and at least 70% plant control about 20 days after treatment. Hacker and Brigance each fail to present examples for the instantly claimed combination of glyphosate and a pyridine analog herbicide and fail to describe or suggest both early and late plant symptomology. Claims 67-70 are therefore non-obvious over their combination and meet the requirements under 35 U.S.C. §103(a) for this additional reason.

\* \* \* \* \*

The Commissioner is hereby authorized to charge any underpayment and/or credit any overpayment of government fees in connection with this response to Deposit Account No. 19-1345.

Respectfully submitted,

/James D. Harper/

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